Mitochondrial gene transfer is a fascinating therapy that has a number of ethical and logistical concerns floating around it. Some are concerned about its safety, as it is possible that adding new genes into a living organism may result in bad health, which would defeat the purpose of the therapy According to Mitalipov and Wolf, however, studies on macaque offspring showed no signs of this being an issue, even when they tried to create negative results by "combining distant nuclear and mtDNA haplotypes" of the aforementioned macaques. No negative effects were discovered.

As of yet, no negative effects have been discovered with the treatment. However, there are some serious ethical concerns, as well. If the mitochondrial DNA of an afflicted individual is supplemented with DNA from an unaffected individual, there is an argument that can be made that any of the host's offspring might have "three" parents it can be genetically tied to. However, this is a non-issue.

First of all, the amount of DNA changed is 0.1% (even less if you take from a genetically similar, but still unaffected, DNA donor). If this much DNA must be changed to save a child from a debilitating or possibly life threatening disease, then it would be more unethical to refuse it based on some kind of idea of parenthood.

Secondly, this changes the host's DNA first. Do they suddenly have three parents? Even if they would, look back to the previous point.

Finally, if the host and their offspring have a little DNA from a third party, what does that change? If you give your neighbor a bolt to help them build a car, you hold no claim over the car. If you give your neighbor 0.1% of your DNA to save them from a debilitating disease, you logically should not have any claim over your neighbor or their children.

In short, there are legitimate ethical and health concerns over this new technology, as there are over any technology, but upon further investigation, the problems are minimal, if not all but non-existent, and are a small price to pay for a better life for our children.